

We claim:

1. A hybrid chuck for securing workpieces with an electrostatic charge, the hybrid chuck comprising:
a dielectric base for supporting the hybrid chuck, the dielectric base having a top surface;

a conductive layer covering at least a portion of the top surface of the dielectric base, the conductive layer being conductive for receiving a current to create an electrostatic charge and being non-metallic for maintaining the electrostatic charge without significant eddy current losses in the presence of dynamic electromagnetic fields; and

a top working surface, the top working surface covering the conductive layer and being flat for holding workpieces upon the receiving of the current to create the electrostatic charge in the conductive layer.

2. The hybrid chuck of claim 1 wherein the dielectric base, conductive layer and the top working surface are ceramics.

3. The hybrid chuck of claim 1 including a hydrophobic surface treatment covering the top working surface for repelling moisture from the hybrid chuck.

4. The hybrid chuck of claim 1 wherein the conductive layer includes at least two poles separated by a dielectric material.

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5. The hybrid chuck of claim 4 wherein the dielectric base isolates at least two poles of the conductive layer.

6. A hybrid chuck for securing workpieces with an electrostatic charge, the hybrid chuck comprising:
a dielectric ceramic base for supporting the hybrid chuck, the dielectric ceramic base having a top surface;

a conductive ceramic layer covering at least a portion of the top surface of the dielectric ceramic base, the conductive ceramic layer being conductive for receiving a current to create an electrostatic charge and being ceramic for maintaining the electrostatic charge without significant eddy current losses in the presence of dynamic electromagnetic fields; and

a top ceramic working surface, the top ceramic working surface covering the conductive ceramic layer and being flat for holding workpieces upon the receiving of the current to create the electrostatic charge in the conductive ceramic layer.

7. The hybrid chuck of claim 6 wherein the dielectric ceramic base is an alumina-base ceramic and the ceramic working surface is a conductor having a greater conductivity than the alumina-base ceramic.

8. The hybrid chuck of claim 6 including a hydrophobic surface treatment covering the insulating working surface for repelling moisture from the hybrid chuck.

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9. The hybrid chuck of claim 8 wherein the hydrophobic surface treatment is selected from the group consisting of silane and siloxane coatings.

10. The hybrid chuck of claim 6 wherein the conductive layer includes at least two poles separated by an insulating material.

11. The hybrid chuck of claim 10 wherein the dielectric ceramic base insulates the at least two poles of the conductive layer.

12. A hybrid chuck for securing workpieces with an electrostatic charge, the hybrid chuck comprising:

a dielectric ceramic base for supporting the hybrid chuck, the dielectric ceramic base having a top surface;

a conductive ceramic layer covering at least a portion of the top surface of the dielectric ceramic base, the conductive ceramic layer being conductive for receiving a current to create an electrostatic charge and being ceramic for maintaining the electrostatic charge without significant eddy current losses in the presence of dynamic electromagnetic fields;

a top ceramic working surface, the top ceramic working surface covering the conductive ceramic layer and being flat for holding workpieces upon the receiving of the current to create the electrostatic charge in the conductive ceramic layer; and

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a sealant covering the top ceramic working surface for protecting the top ceramic working surface from water adsorption.

13. The hybrid chuck of claim 12 wherein the dielectric ceramic base is an alumina-base ceramic and the ceramic working surface is a conductor having a greater conductivity than the alumina-base ceramic.

14. The hybrid chuck of claim 12 wherein the sealant is hydrophobic for repelling moisture from the hybrid chuck and electrically insulating for preventing electrostatic leakage.

15. The hybrid chuck of claim 14 wherein the sealant is selected from the group consisting of silanes and siloxanes.

16. The hybrid chuck of claim 12 wherein the conductive layer includes at least two poles separated by an insulating material.

17. The hybrid chuck of claim 16 wherein the insulating base insulates the at least two poles of the conductive layer.

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